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This edition includes a short status report on TSS/360; advance information on Release 14 of OS/360, changes to the floating-point hardware and a faster Assembler/360; and reminders on job cards, scratch storage, timing subroutines, FORTRAN restriction in DO loops, and printed-page control; new routines in the FORTRAN library; and some words from the operator's console.

NEWS ON TSS/360

This week we shall receive and begin evaluating Release 1.2 of the Time-Sharing System (TSS/360). (Release 1 was made in October 1967, and the first Maintenance Release, 1.1, followed in late January 1968.) This new release contains many system modifications, the most significant of which should improve performance particularly on multiple FORTRAN tasks.

At the February meeting of SHARE in Houston, IBM announced delivery dates on the major functional improvements scheduled for 1968. These include a new Command Language and a table-driven scheduler to replace the present scheduling algorithm. IBM also reiterated their statement of January 1967, that no further functional extensions are planned beyond these mentioned above. These extensions were to have been, according to the initial announcement in 1966, conversational PL/1, COBOL, Sort/Merge, Graphics support, and Checkpoint/Restart. None of these items was required by NPGS. Thus, IBM's present position is essentially the same as that stated in January 1967--only it's a more positive negative!

OS/360 RELEASE 14, COMING

After generation and preliminary testing, the Computer Facility will change to Release 14 of OS/360. Please watch our bulletin board for the exact date. Most of the changes affect the system internally without impact on you. However, you must be aware of the following items:

1. JCL invalid characters. (See Newsletter Volume 1, Number 2 of February 1968 for effect on DS Names.)

2. Internal FORTRAN naming conventions changed. The symbol, #, has been dropped from FORTRAN routine entry points. (See other item, this Newsletter.)

3. FORTRAN Compiler changes. A completely new H-level compiler (FORTRAN IV H, Version II) compiles approximately 30-40% faster than previous versions. It supports direct-access data statements, allows more than 25 (the old limit) call-by-name arguments to be passed to subroutines and provides a detailed cross-reference list (XREF) on request.

Also an improved G-level compiler includes an ID option for function and subroutine call references. This shows up as a statement number in error traces.

FORTRAN OBJECT AND LOAD MODULE USERS, BEWARE!

In Release 14, the # symbol has been dropped from FORTRAN routine entry points. Existing load modules will continue to execute properly, but keep your FORTRAN decks up-to-date. The output from the FORTRAN compilers and library is not compatible with earlier compilations and linkage edits. If it is necessary to linkage edit an existing FORTRAN load or object module, the entire program (including all subroutines) may have to be recompiled.

FLOATING-PT. OPERATION

Engineering changes will be made later this year to the floating-pt. hardware which will affect the use of the guard digit, the operation of the HALVE instruction, and the handling of exponent overflow and underflow. These modifications were originally recommended by the SHARE committee on Numerical Analysis to correct certain anomalies and improve the general numerical characteristics. IBM will publish the relevant changes to the "System/360 Principles of Operation" manual soon. In the meantime users can refer to advance information available in the Administrative Office, Computer Facility, Sp-101G.

Many of the anomalies long present in floating-pt. hardware are magnified in importance under base 16 arithmetic. Some of these problems are clearly illustrated in the short paper by W. J. Cody, "The Influence of Machine Design in Numerical Algorithms", Proceedings of the Spring Joint Computer Conference, 1967, pp 305-309. The author is a member of the SHARE committee influential in introducing the above hardware modifications.

ASSEMBLY USERS - RELIEF IS ON THE WAY

Soon we shall be introducing into OS/360 a new 360/Assembler (ASMG) obtained from the University of Waterloo, Ontario, Canada. It does for the Assembly language programmer what WATFOR does for the FORTRAN user. It is approximately 4-5 times faster than the present 360/Assembler Level G. Watch for our announcement soon.

CARE WITH OS JOB CARDS

1. The 'name' field of the JOB card is restricted to a maximum of 20 characters.

2. Users should avoid having jobs with identical job cards in process at the same time. They can finish up in the job queue together causing confusion to HASP and the operators. It takes valuable time to resolve the ambiguities. The moral is use different job names if you make multiple submissions.

SCRATCH SCRATCH BEFORE USING!

Scratch storage is by definition working, not permanent, storage. Ideally, each user should show concern for his fellows by clearing his scratch area after use. However, it is also good programming practice to play safe; start your job by purging information left on a scratch medium by previous job(s). You can do this using the IEHPROGM utility.

ABOUT 'TIME'

The function ITIME has been available in the FORTRAN library to allow FORTRAN programmers to conveniently use the OS macro TIME during the execution step of their programs. However, under HASP, that macro does not usually provide a correct result since more than the actual execution time of the user's task will be included. To correct this, a new subroutine with entry points, SETIME and GETIME, has been added to the FORTRAN library. It interfaces with the macros STIMER and TTIMER and will provide accurate execution timing. For more information, see the writeup of this routine.

NO 'DO' IN AN 'EXTENDED-DO'

Users should note that manual C28-6515-5, "FORTRAN IV Language" states on page 35, that "No DO statements are permitted in the extended range of the DO statement." Previous versions of this manual did not mention this restriction.

A PERENNIAL PROBLEM - A GREAT PAPER WASTER

Characters in column 1 of a printed line have special significance; they are used for vertical page-control. Illegal characters can produce unpredictable results! To save paper, it is recommended that you leave column 1 blank unless you know what you are doing.

ROUTINES RECENTLY ADDED TO THE FORTRAN LIBRARY

JACVAT - All eigenvalues and eigenvectors of real, symmmetric matrix, Jacobi Variable-Threshold Method.

DJACVT - Double precision version of above.

ALI - Aitken-Lagrange Interpolation.

FROM THE OPERATOR'S CONSOLE....

1. Correct processing of your jobs depends on a complete and accurate Job Request Form. Time cannot be wasted at the console trying to guess what you meant. And would you believe it?--sometimes we are not thanked for guessing. In particular, please indicate any special hardware conditions required, e.g., 512K core.

2. Users are restricted to a maximum of 5 graph plots per day. Special requests for more should be discussed with the Operations Supervisor, SP-101D.